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NOTE ON THE OCCURRENCE OF ADOBES IN CLIFF-DWELLINGS

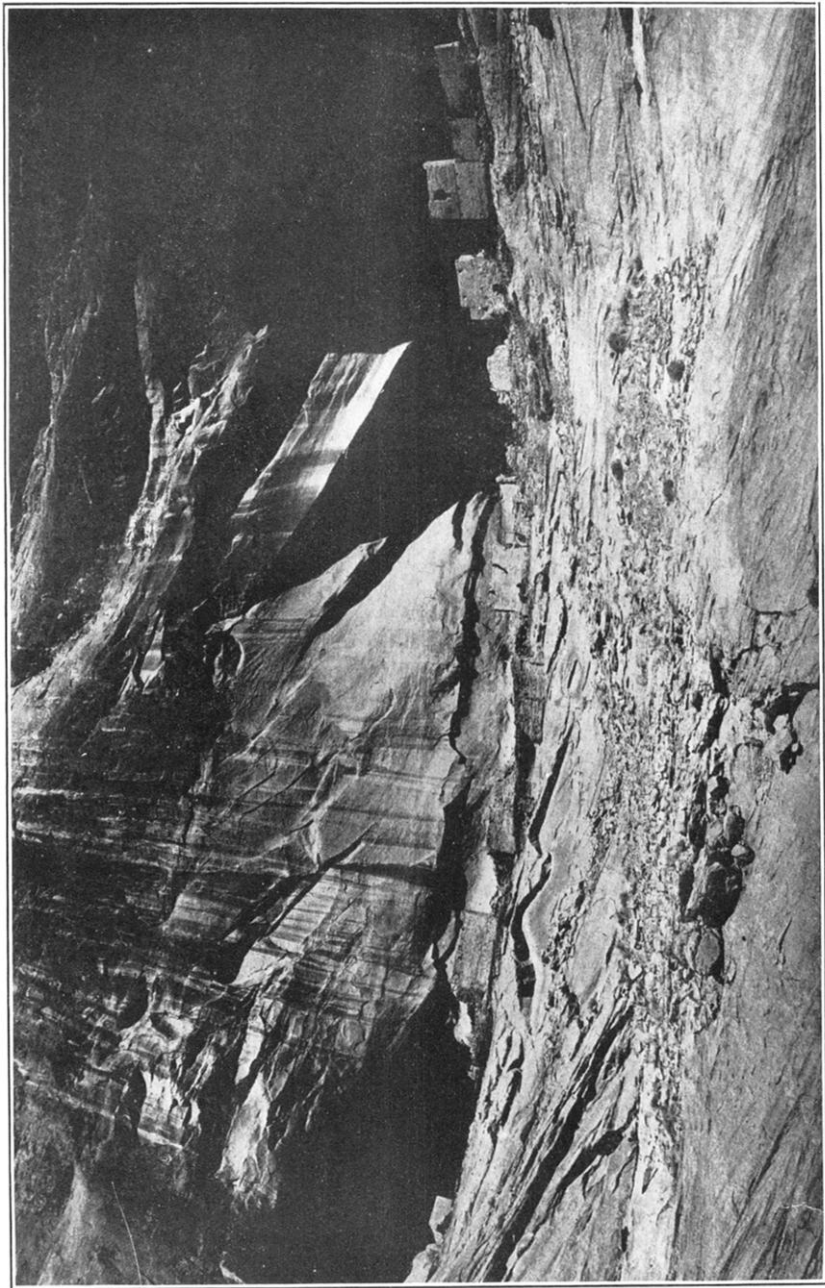
By J. WALTER FEWKES

MEXICANS and Pueblo Indians in New Mexico commonly use sun-dried bricks called adobes in the construction of their dwellings. It is sometimes stated that the Indians were taught their use by Europeans and that the cliff-dwellers were ignorant of this building material. The object of this article is to call attention to a peculiar type of adobe used in the construction of cliff-dwellings situated in West canyon, northern Arizona, and its bearing on the antiquity of the use of adobes in the Pueblo region.

Evidence will be presented in a future publication that the cliff-dwellers of the Mesa Verde National Park used cubical adobes¹ in the construction of certain walls of Cliff Palace. As this ruin is prehistoric it would appear that the cliff-dwellers of Colorado had adobes before the arrival of Europeans. Adobes of the Mexican form and composition are at present almost universally employed by modern Pueblo Indians of the Rio Grande region in the construction of their houses, but up to within a few years they were unknown as far west as the land of the Hopi.² When these objects are found in ruined pueblos it is customary to suppose that these ruins were deserted in comparatively modern times, for the oldest pueblos have no Mexican adobes in their walls. Adobes of the Mexican type are numerous in the cliff-dwellings of the Canyon

¹ The "round balls" of "dirt," ashes, and charcoal mentioned by Castañeda as a building material of the pueblos in 1540 were probably forms of adobes. Cf. F. W. Hodge, *The Original Use of Adobes*, the *Archæologist*, Ohio, August, 1895; also *Handbook of the American Indians*, article Adobe. Castañeda's account of course refers to pueblos not to cliff-dwellers which adds new interest to the discovery at Cliff Palace that the prehistoric people of the latter also made adobes of clay mixed with ashes and bits of charcoal.

² The adobe walls in the Hopi mission, San Bernardino de Awatobi, were undoubtedly due to Spanish influence.



Photograph by W. B. Douglass

INSCRIPTION HOUSE

de Chelly, where they appear to indicate secondary occupation in historic times, as pointed out by Mr. Cosmos Mindeleff.¹

At least three types of adobes were used by the cliff-dwellers in the construction of the walls of their dwellings: (1) Mexican adobes or sun-dried bricks made of clay mixed with straw. These have a tabular form, well marked angles and show on their surfaces impressions of the wooden frames in which they were moulded; (2) cubical adobes made of clay without straw, but with fragments of charcoal or ashes in composition—their angles are rounded and their surfaces show hand marks; (3) Vienna-roll adobes, made of clay with a central core of twigs, without angles or marked faces, but with superficial impressions of human palms and fingers. The first of the above types is historic and shows Mexican influence; the second and third are aboriginal and probably prehistoric.

In the same general group of adobes should be mentioned the large blocks of natural cement called "*calèche*" of which the walls of Casa Grande in the Gila Valley were constructed. This type is regarded as prehistoric.

I am not considering in this article the Mexican type of adobe brick, or that made in a wooden frame, nor the great blocks of "*calèche*" used by the prehistoric inhabitants of the Gila, Salt, and Santa Cruz valleys in southern Arizona, but a form of adobe brick shaped like a Vienna-roll unlike Mexican adobes in shape, size and construction and differing from the blocks that form the walls of Casa Grande not only in shape and size, but also in the presence of twigs or sticks in their interiors.

The form of adobe found in walls of cliff-dwellings to which this article is especially devoted occurs in the large ruin in West canyon, called by Mr. W. B. Douglass of the U. S. Land Office, Inscription House, a view of which is shown in the accompanying plate² (pl. XXIX).

¹ As will be shown in a later article the people who were the second occupants of some of the Chelly canyon cliff-dwellings not only built new rooms with adobes but also altered old rooms, as kivas, to suit their own ideas, using adobes for this purpose.

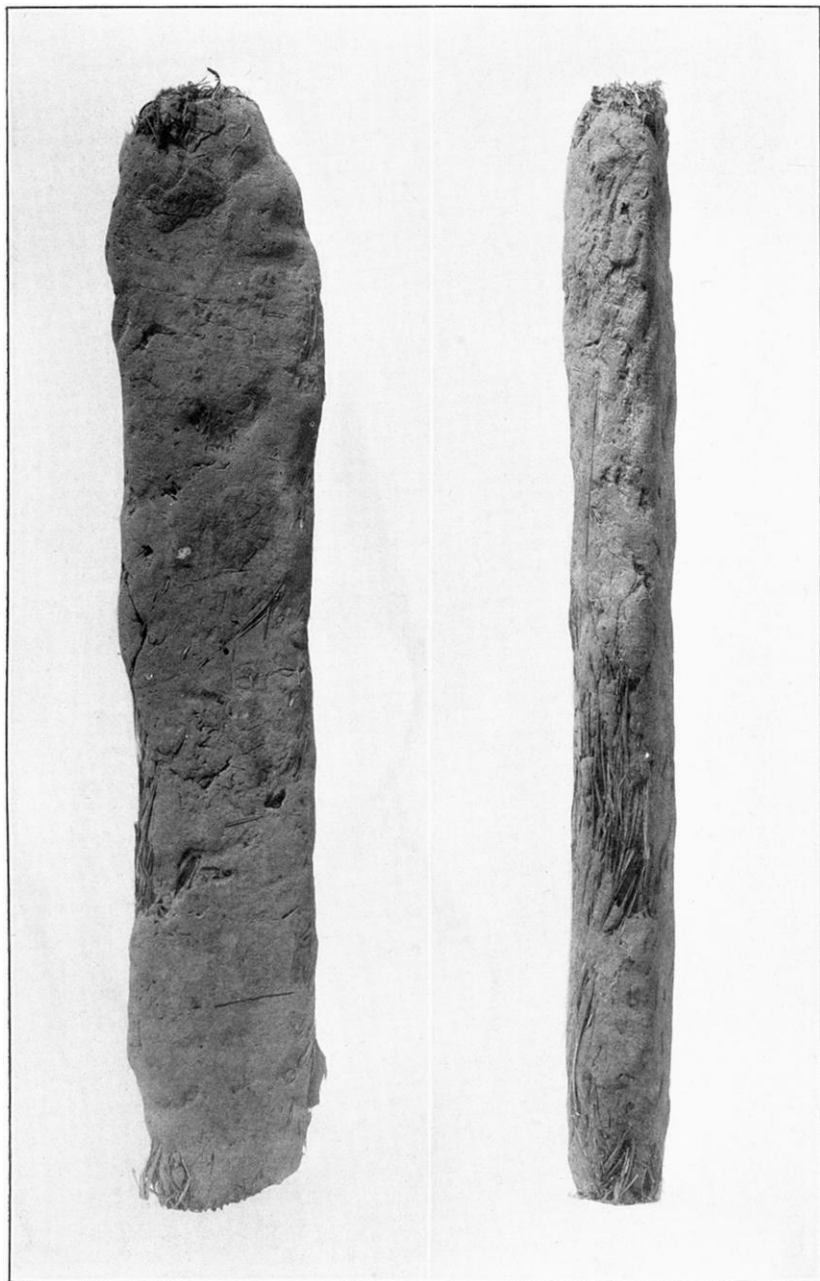
² This canyon is situated in northern Arizona about due south of Navaho mountain, not far from the junction of the San Juan and Colorado rivers, a short distance from the Utah border.

A better idea of the general appearance of one of these adobes can not be given than by a reproduction of a photograph of a typical specimen which was removed from the top of one of the walls of Inscription House, and is now deposited in the United States National Museum. The accompanying plate (pl. xxx) has figures of a whole brick, showing the bundle of sticks which forms a core and binds the particles of clay together, sometimes so tenaciously that it is hard to break down a wall constructed of them. At one point, in the ruin, may be seen a corner and two sides of a room that have fallen on account of undermining, carrying with them two adjacent walls unbroken from their attachment to each other.

The general appearance of these adobe blocks (pl. xxx) would indicate that they were fashioned by hand. They exhibit no sign of the use of a wooden frame such as is employed in the manufacture of Mexican adobes, and in several places on the surface of one of these bricks marks of human fingers and on others impressions of the palms of the hand are noticeable. Their appearance would indicate that they were fashioned into shape by hand before they were set in the walls, but nothing shows that they were ever submitted to the action of fire. Apparently they were still soft when laid, for the faces upon which they rest are more or less flattened.

It is impossible to prove that the ruins in West canyon from which these adobes were obtained are prehistoric and they may be historic. Evidences bearing on their antiquity will be submitted in my report on these ruins. Inscription House may have been constructed by fugitives from the Rio Grande, after the great rebellion of 1680, and therefore by Indians familiar with adobes, but it seems more reasonable to conclude that the builders of these ruins evolved this kind of building material independently, possibly getting the idea from fragments of clay clinging to wattlings in the jacal¹ walls with which they were acquainted.

¹ The "jacal" method of wall construction, which is common in some of the cliff-dwellings of the Navaho National Monument and those of the Canyon de Chelly, also occur in the ruins at West canyon. In this form of architecture rows of upright sticks support the wall, and between these supports are woven osiers, tied together, which hold in place the clay or adobe plasterings.



ADOBES FROM INSCRIPTION HOUSE